

Remarks begin on page 8 of this paper.

### AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning on Page 1, Line 12 through Page 2, Line 2 with the following paragraph rewritten in amendment format:

Aluminium - gold alloys, with the comparable atomic size factors (2.878:2.8577), similar lattice crystal structure (f.c.c.) and large variation in electro-negativity factor, produce adversity of microstructures and phases. The aluminium-gold phase diagram illustrates regions of solid solution, eutectic, and complex compound ( $\text{Au}_5\text{Al}_3$  [Au<sub>3</sub>Al]  $\text{AuAl}_2$ , gamma, etc). The [Au<sub>3</sub>Al]  $\text{AuAl}_2$  intermetallic compound is a complex cubic structure similar to  $\beta$  manganese and is a somewhat metastable state, with an electron: atom ratio of 3:2 and a weight percent ratio of 78.5%Au:21.5%Al. It is of particular interest to jewellers and the like because of its brilliant purple-golden colour. However, interest is largely offset by the fact that the [Au<sub>3</sub>Al]  $\text{AuAl}_2$  intermetallic compound is very brittle; like ordinary glass or porcelain it will fracture with a hard knock. In fact, its brittleness is such that the [Au<sub>3</sub>Al]  $\text{AuAl}_2$  intermetallic compound cannot be hardness tested using the Rockwell B hardness testing machine with a 100 kg load; it will fracture even when a 60 kg load is applied.

Please replace the paragraph beginning on Page 2, Line 14 through Page 3, Line 2 with the following paragraph rewritten in amendment format:

As can be seen from the Au-Al phase diagram, lowering the gold content below 78.5 wt% in the AuAl system gives rise to the co-existence of two structures - the [Au<sub>3</sub>Al]  $\text{AuAl}_2$  intermetallic compound and the eutectic structure of Al and  $\text{AuAl}_3$  - in the same sample. Thus, upon slow cooling from the molten phase or annealing of rapidly

solidified samples, precipitation of the aluminium rich eutectic phase on outward surfaces degrades the purple-golden colour. Even if rapidly solidified samples are not annealed, similar decolouration of the purple-gold colour may also occur after fabricating and polishing the jewellery and possibly even through prolonged usage, albeit at a much slower rate. The hardness of the eutectic and  $[\text{Au}_3\text{Al}] \text{AuAl}_2$  phase is also significantly lower (around 10% for an alloy of 75 wt% gold and 25 wt% aluminium) than that of the  $[\text{Au}_3\text{Al}] \text{AuAl}_2$  intermetallic compound. For these two reasons, the commercial viability of the alloy is limited.

Please replace the paragraph beginning on Page 3, Lines 20-25 with the following paragraph rewritten in amendment format:

By definition, the jewellery alloy does not include pure intermetallic compound  $[\text{Au}_3\text{Al}] \text{AuAl}_2$  (78.5 wt% Au and 21.5 wt% Al) because it does not have the toughness to withstand Rockwell B hardness testing with a 100 kg load. The term 'substantially purple hue' includes the colours reddish or pinkish purple and lighter purples.

Please replace the paragraph beginning on Page 3, Line 26 through Page 4, Line 2 with the following paragraph rewritten in amendment format:

Preferably, the hardness of the jewellery alloy remains substantially similar to that of the  $[\text{Au}_3\text{Al}] \text{AuAl}_2$  intermetallic compound; that is to say, the hardness of the jewellery alloy is within about 6%, more preferably 5%, of the hardness of  $[\text{Au}_3\text{Al}] \text{AuAl}_2$ .

Please replace the paragraph beginning on Page 6, Lines 9-15 with the following paragraph rewritten in amendment format:

The  $[\text{Au}_3\text{Al}]$   $\text{AuAl}_2$  intermetallic compound has a brilliant purple hue, but is known to be brittle. The micro-hardness testing with a 200g load gave a reading of Vickers 250 (HRB-102 by conversion). After annealing no visible precipitates were found. Subsequent testing with Rockwell B hardness machine resulted in multiple fracturing of the specimen.